The Effects of Marine Protected Areas on Larval Rockfish Ecology

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Abstract
Marine protected areas (MPAs) are becoming increasingly popular tools for managing fisheries. Benefits include the protection of ecosystem structure and function and replenishment of depleted marine populations. Two major assumptions underlying reserves are that a protected population is more productive and that there is a spillover effect into unprotected areas. This 'leakage' is presumably in the form of larvae, juveniles and adults. There is a significant body of evidence on increased abundance, length and weight frequency of adults in protected areas as well as their movement across reserve boundaries. Although larval export is a widely accepted mechanism, there is little empirical research in the literature. I conducted a survey of ichthyoplankton during spring 2002 in the San Juan Islands, WA, with 2 objectives: investigate whether larval production is greater in MPAs as compared to unprotected areas and whether dispersal patterns from MPAs can be detected. I have focused my research on rockfishes, a typically long-lived, late-maturing and formerly abundant species groups. Preliminary results suggest that rockfish larvae are concentrated nearshore and near MPAs, indicating that larval dispersal may not be as prevalent as MPA theory predicts.